

The Central Texas Bioregion Is Bumping With Biodiversity

Travis County in Central Texas is 30°18' north latitude and 97°45' west longitude. The Texas Northern Blackland Prairies make up the majority of my bioregion but the Edward's Plateau Woodland, Llano Uplift, Limestone Cut Plains and the Balcones Canyonlands border its edges.

Classification of agroecosystems in this bioregion includes a variety of crops, cattle, sheep, grains, poultry, greenhouses, and mixed farming systems. There are a large number of backyard gardens and community gardens. Ecological energetic processes in the agroecosystem include the use of mechanization and chemical fertilizers on the non organic farms that grow grains. Intensified agriculture in this bioregion includes semi-industrial and full industrial (Altieri 1995, 50).

The growing season is about 270 days however there are crops that can be grown year round (Smyrl 2010). The Blackland Prairie is predominantly clay and the Edward's Plateau is a mix of caliche and clay. Agricultural systems include grazing systems for cattle, while there are wildflower programs in place to incorporate native species back into the land along the highways (Altieri 1995, 40). There are gradient changes where ecoregions intersect like in Edwards Plateau and the Blackland Prairies. Cropland, pasture, urban development, industrial growth, and organic farming have altered the Texas Blackland Prairies (Glenn Griffith 2007). "Less than one percent of the original vegetation remains. Restoration activities in some of the protected prairies include prescribed burning, haying, and bison grazing (Glenn Griffith 2007)."

Some examples of the biodiversity in this bioregion include native plants, grasses, trees, succulents, flowers, herbs, and cactus. Trees include Oak, Pecan, Black Walnut, Dogwood, Mesquite, Cedar, Mexican Buckeye, and Texas Ash (Texas A & M

Agrilife Extension Service 2013). Shrubs and smaller trees that can be found here include Bottlebrush, American Beautyberry, Crepe Myrtle, and Mexican Redbud (Texas A & M Agrilife Extension Service 2013)

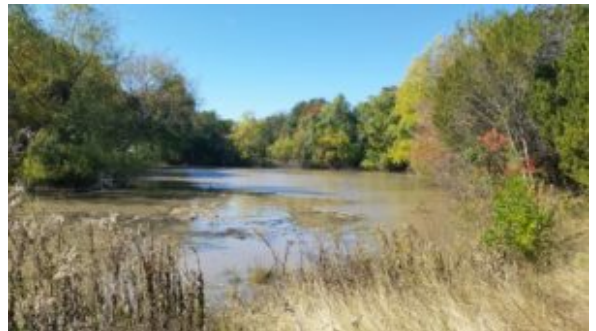
Some of the capital resources include the Ogallala Aquifer and the LCRA controls water from the Colorado River to six dams including the Highland Lakes (Lower Colorado River Authority 2014, Texas Water Development Board n.d.) An extinct volcano makes up part of the Edward's Plateau (Smyrl 2010). Soil formations are attributed to Cretaceous shale, chalk, marl and of these irregular plains, gradient streams of silt, clay, and sandy substrates are located at an elevation between 300-1050 feet above sea level (Glenn Griffith 2007). The average temperature for Travis County is 67.51°F and the average rainfall for my bioregion is 35.22 inches of rain per year (World Media Group, LLC. 2014).

Spanish settlers and the Mexican government have been a crucial part of indigenous lineage also in the Texas Blackland Prairies (Smyrl 2010). Human resources and the metapopulation include nonprofit organizations, parks, neighborhoods and east side organic farms. The ever-changing region hosts a myriad of culture, industrial development, fauna, agricultural opportunities, native and adapted flora, soil variations, geological land shifts, warm weather, light precipitation, and is a college mecca.



Just after you

cross the street to get back on the trail you are able to enjoy the beautiful maple trees turn colors in the fall. This illustrates how the landscape significantly changes within a 2 mile stretch.



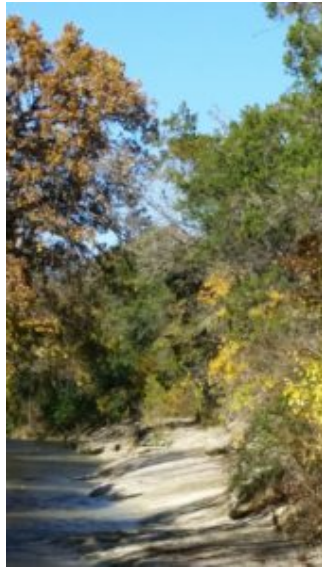
The Blackland Prairie ecoregion meets the Savannah ecoregion opening up into this beautiful wetland that is thriving as a result of habitat management.



When the river is high you can kayak alongside.



Fossilized seashells indicate oceanic activity years ago. This indicates Edward's Plateau ecoregion.



Hiking along the
bank of Walnut
Creek



Hiking with my cousin
Tabitha near the end of the
2.2 mile hike one way, at
Copperfield Greenbelt Trail
in Austin, Texas. Loop back
for a hike over 4 miles.



Balcones
Canyonland
Ecoregion near
the trailhead.

These photos were taken with my cousin Tabitha while on a hike at Copperfield Greenbelt Trail in Austin, Texas in the fall of 2015. We will cherish these memories forever as we instill her passion for adventure, nature, and life in our hearts.

Bibliography

Altieri, Miguel A. *Agroecology: The Science of Sustainable Agriculture*. Westview Press, 1995.

Glenn Griffith, Sandy Bryce, James Omernik, Anne Rogers. *Ecoregions of Texas*. Austin, December 27, 2007.

Lower Colorado River Authority. *Energy, water and community services for Central Texas*. 2014. <http://www.lcra.org/about/Pages/default.aspx> (accessed October 30, 2014).

Rose, Peter R. "The Walter Geology Library, The Balcones Escarpment: Pipeline Oil Spills and the Edwards Aquifers, Central Texas." *The University of Texas Libraries at Austin*. January 31, 2012. http://www.lib.utexas.edu/geo/balcones_escarpment/pages163-183.html (accessed October 30, 2014).

Smyrl, Vivian Elizabeth. "Travis County: Handbook of Texas Online." *Texas State Historical Association: A Digital gateway to Texas History*. June 15, 2010. <http://www.tshaonline.org/handbook/online/articles/hct08> (accessed November 24, 2014).

Texas Parks and Wildlife Department. *Rare, Threatened, and Endangered Species of Texas*. http://www.tpwd.state.tx.us/gis/ris/es/ES_Reports.aspx?county=Travis (accessed November 24, 2014).

Texas A & M Agrilife Extension Service. *Native and Adapted Landscape Plants*. 5th. Austin: Grow Green, 2013.

Texas A & M University System. *Agricultural and Mechanical College Extension Services*. <http://aggie-horticulture.tamu.edu/vegetable/guides/the-crops-of-texas/appendix-1-descriptions-of-geographic-regions-in-texas/> (accessed October 31, 2014).

Texas Water Development Board. *Major Aquifers*. <http://www.twdb.state.tx.us/groundwater/aquifer/major.asp0> (accessed November 11, 2014).

World Media Group, LLC. "Travis County Weather." *USA.com*. 2014. <http://www.usa.com/travis-county-tx-weather.htm> (accessed November 24, 2014).

Cover Crops for Central Texas

Three cover crops that are perfect for the soil in the Blackland Prairies ecoregion in Central Texas, include buckwheat, peas, and crimson clover. The benefits of peas and clover cover crops include adding nitrogen back into the soil. Peas and clover are members of the Legume family and increase organic matter in the soil, encourage beneficial insects, which increases pollination for your growing spaces when the flowers are in bloom. Clover also provides an excellent breeding ground for ladybugs, the larvae, and pupa thrive in the microclimate that they create. Allowing some of your winter and spring crops to bolt and flower may encourage aphids to visit but that's what ladybugs and larvae love to eat so you can boost your beneficial insects in your backyard just by making a few exceptions! This year has been incredible watching the lady bug populations go wild in our largest garden. It's hard to believe that just a year and a half ago our largest bed was a small butterfly garden, but mostly clay covered by grass.

A disadvantage of using clover is that it can only survive in cooler months like spring, fall and winter, and withers in the heat of the summer. This year I planted crimson clover mid winter due

to the mild temperatures, but often it's recommended to start before winter. Since we have mild winters in Central Texas growing them after the first frost isn't a problem, they just take longer to progress. Peas get stressed from heat as well and will freeze, but there are other varieties that contend with the heat much better. Crimson clover, Buckwheat and other green manures aka cover crops aid in attracting beneficial insects like bees to pollinate (Shirey n.d.). Some legume cover crops aren't good at suppressing weeds (Grubinger n.d.).

When the heat turns up Buckwheat is a more appropriate soil builder as it also blocks other weeds from trying to break through and takes one third of the time as clover to develop. Buckwheat produces large amounts of residue that adds organic matter to the soil (Sustainable Agriculture Research & Education 2012). Buckwheat also supports pollinator populations (SARE 2012). Buckwheat is very hardy, drought tolerant to some degree and efficient at separating clay to provide a better planting medium and bring nutrients closer to the plants (Taylor 2014). Within 30 days from planting Buckwheat is blooming which makes it a great time energy source for soil building in between other plantings. Chickens love it, and it produces a great seed to make gluten free flour with, or add it or the leaves to your smoothie. **Buckwheat** can make your landscape and food plate more sustainable!

Planting in the right season is paramount to production growth and the ability to improve soil structure (Grubinger n.d.). Some downsides of cover crops and green manures are that they aren't produced for revenue but short term economic gain (Grubinger n.d.). Which is why alternating crops and planting a green manure during seasonal changes is a good time to grow these crops on your farm or in your garden because when your soil is bare, beneficial protozoa, fungi, and essential minerals are leached from the soil and it loses structure. This works against the Central Texas grower during drought season. The healthier your soil is, the more drought tolerant they are, and the healthier your plants become! Therefore diseases will potentially be decreased because of your balanced ecosystem.

It is important that cover crops are planted in succession of food crops in order to maximize biodiversity so allow enough time for the plants to enrichen the soil before you plant your next food crop. Green manures can be worked into the soil at any time and harvested early if need be but in order to reach their full potential for your soil it is best to wait until they are ready to bloom. Allowing them to grow beyond blooming increases agrobiodiversity and you will find that some make and excellent living ground cover. For instance, clover is an excellent living, green mulch that surpesses weeds that try to sneak through your nifty rows. It can be an organic and

sustainable alternative to straw which is generally sprayed with chemicals if purchased in Texas, or man made ground covers that use excessive amounts of energy to produce and distribute, therefore decreasing the sustainability of your farm and your carbon footprint. Using clover as a living mulch will encourage beneficial bacteria, beneficial bugs, improves soil health, and increases biointensive growing capabilities. Plus, it looks pretty!

Cover crops maintain and improve soil fertility, prevent wind erosion and encourage biomass (SARE 2012). In order for cover crops to be the most beneficial they also need to be trimmed or turned into the soil which can take time. Leaving soil bare prevents bacteria, earthworms, and fungi from encouraging micronutrient production (Relf 2009). Cover crops and green manures should be planted in succession of other crops.

Bibliography

Relf, Diane. *Virginia Cooperative Extension*. May 1, 2009.
<https://pubs.ext.vt.edu/426/426-722/426-722.html>
(accessed March 16, 2015).

Shirey, Trisha. *Central Texas*.
<http://www.klru.org/ctg/resource/cover-crops-for-winter-gardens/> (accessed March 16, 2015).

Sustainable Agriculture Research & Education.
Cover Crops. 2012.

<http://www.sare.org/Learning-Center/Topic-Rooms/Cooper-Crops> (accessed March 16, 2015).

Taylor, Gordon, interview by Kristin Schultz.
Travis County Farming (September 18, 2014).

Mid Summer Garden

Well I don't think I can ever get caught up in the backyard these days! My gardens have become so large that I'm constantly cultivating the soil! It seems as if just as I've finished one thing, another bed needs redone!

It has been a very successful tomato season for us even though many farmers have said the complete opposite due to all of the rain! Plenty of heirloom tomatoes here! At this time I have planted about 102 in my small space. The reason for that is a greenhouse lesson learned. In the years prior I seed started in the house where the environment wasn't ideal for sprouting. Davin was able to finish the greenhouse coop last fall and I was able to start my favorite varieties successfully for the first time. I put 3 seeds in each pod, and guess what, they all came up! So, I was able to sell a few at the farmer's market, and donated about 40 to a few local families. Lesson learned! We will be expanding our greenhouse coop into a full greenhouse with aquaponics in one section and a chicken care station below, in addition to our seed starting

stations. That will be our next big project after Davin remodels the new coop again. I swear, how many times can you rebuild something until you are satisfied with the end result?

Our chickens are 20 weeks old on Wednesday! One of our Campines has been laying for almost 2 weeks straight now but none of the other ladies have begun yet. The campine eggs are tiny, a little smaller than a guinea egg actually. The new flock is having a hard time adjusting to the heat I think because we had so much rain in the spring that it was actually pretty cool for much longer than it usually is. Since it's dried up for the past month or so it's been pretty hot and they are struggling, even though it hasn't reached 100 degrees yet. Luckily we have multiple fans in both the new coop and the old coop so all of our hens are getting some relief. It does help them to lay in the summer if they have places to cool off. We have multiple locations for water and I like to give them refreshing frozen or chilled afternoon fruit treats.

We also have ten different breeds, within the 20 birds we own. Four of them are 16 months old and three of them are consistently laying. The Ameraucana hasn't been laying eggs but has a deformed dorsal, which I've read is how some of the original Araucanas were shaped. She did have some very soft shelled eggs and I'm not sure if she will lay again or not. So right now she's helping to control the bad bug population, and fertilization. She is one of the original ten pullets that we bought 8-10 weeks old and lost 60% for different reasons. Davin calls her Corky. For anyone considering raising chickens, get them as chicks, not as older pullets. They'll have a much better chance of survival and be much healthier if they grow up in the

same environment.

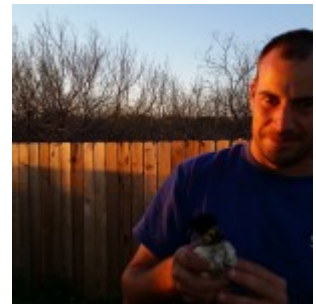
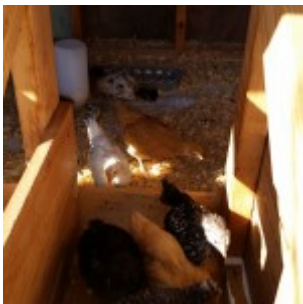
Here are a few pictures to show you what's new at our market garden-backyard homestead and some of the things we've done this spring and summer!



A few plants that
we got from
Sunshine
Community Gardens
annual spring
plant sale, 2015



Seed starts in
the greenhouse



Davin's favorite.



Adjusting the new



Drip system runs

system.

off of rainwater
and is very
efficient.



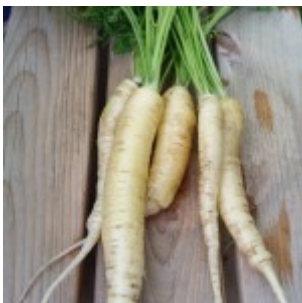
Drinking
harvested
rainwater, packed
full of
electrolytes!



Another compost
pile located in
Sustainable
Garden Bed



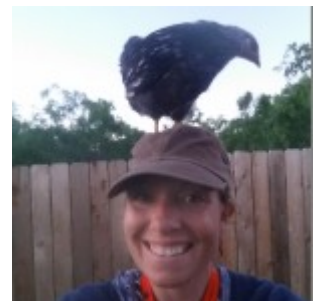
New grape bed and
added garage sale
decor to the gate



French Heirloom
Creme de lite
Carrot



Walking onion



Yes, early
bonding. They
like to jump on
my head!

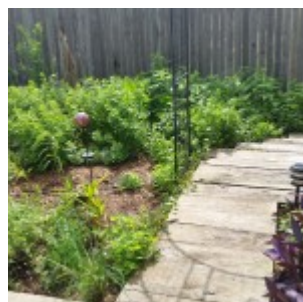


Table grapes from
Stark bro's.



New coop

Herb garden in
the spring 2015



Citrus and
succulents



Just a little wet
from the rain



Grew buckwheat to
build the soil
with nitrogen, as
a beneficial
insect promoter,
and for chicken
scratch



Compost for the
chickens to
scratch in

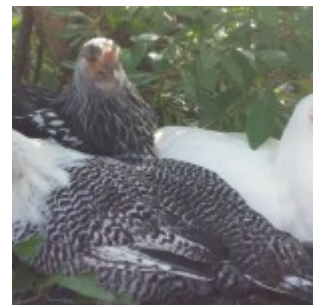




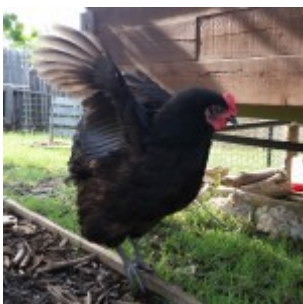
Everbearing
raspberries



1015, Red, White,
Texas Sweet
Onions, were
harvested early
because of all of
the rain and
flooding.



Silver Campine,
Leghorn, Heritage
Breed Hens



This was our
broody Australorp
hen this spring!
We got her back
on track after a
couple of weeks!



Buff Orpington,
Ameraucana, J

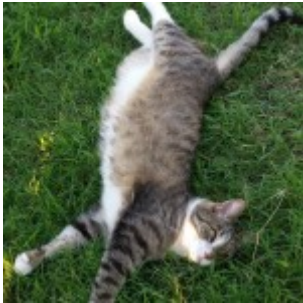




Brabanter
Heritage Breed
Hen



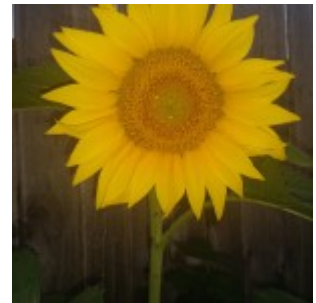
Norwegian
Jaerhons,
Heritage Breed
Hens



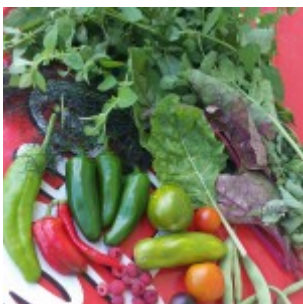
Mic relaxing



rattlesnake that
I went face to
face in while
cultivating the
corn bed



sunflower



late spring/early
summer harvest



Some of the first
harvests in the
spring.



Heirloom Garlic



Giant Zinnia



A peek in the new coop



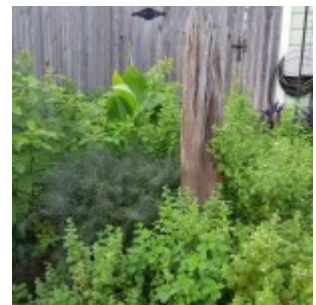
Garden in June



crimson
watermelon that
came up on its
own free will



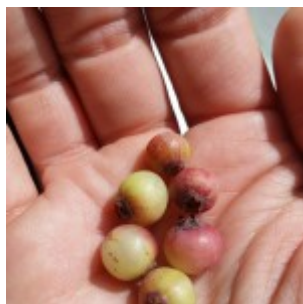
For some reason
we have two
banana spiders
hanging above our
nesting boxes on
both coops. I'm
ok with that too!
They are well
fed!



Melissa, fennel,
raspberries,
roses, cana, and
an old log that
we turned into
garden art in the
herb garden



Cinnamon basil



Pink lemonade
blueberries

